

Fostering graduate attributes through field education in post-quake Canterbury, New Zealand

Alison Jolley¹, Samuel J. Hampton¹, Erik Brogt², Ben Kennedy¹

¹Department of Geological Sciences, ²Academic Development Group


University of Canterbury, Christchurch, New Zealand

Outline

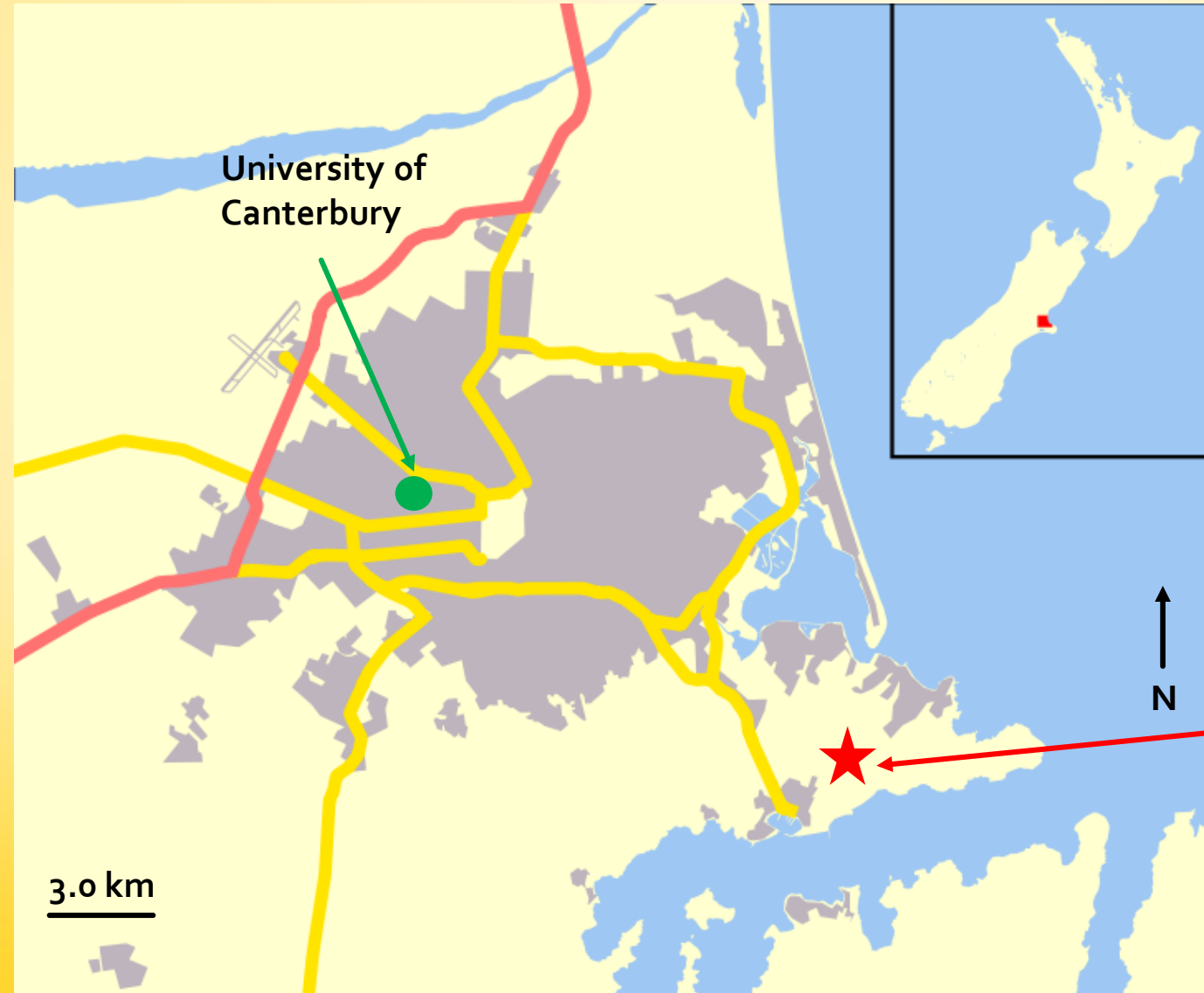
- Canterbury earthquakes
 - Response: immediate and longer term
 - Human capital: education as key to rebuilding Christchurch
- University of Canterbury graduate attributes
 - A venue to articulate and foster a unique skillset
 - Field education as a way to address these attributes
- How can we identify these concepts in students in the field?
 - Landscape heritage and sense of place as a framework for field education

Christchurch City and Epicentre Locations

4 Sept. 2010:
 $M_W 7.1$



~20.0 km



22 Feb. 2011:
 $M_W 6.2$

Earthquake Damage and University Response

- Darfield earthquake
 - 4 Sept. 2010, overnight, $M_W 7.1$ ¹
 - Substantial liquefaction damage
- Port Hills earthquake
 - 22 Feb. 2011, mid-day, $M_W 6.2$ ¹
 - Peak ground acceleration
 - 185 people lost
- University of Canterbury closed, assessed damage on campus, re-opened when safe²
 - Temporary teaching facilities, online delivery of materials
 - Done for each earthquake $> M_W 5.5$ (29 times in the 18 months post-4 Sept. 2010)



Wikimedia Commons, Author: Cataclasis

Students Take Action

- Students mobilized almost immediately after the 4 Sept. quake, using social media
- Formed Student Volunteer Army
 - Provided 2500+ students with placement, transport, and food
 - Cleared 65 000 tons liquefaction
 - Still in existence today, helping with a variety of community projects
- Just one well known example, students giving back in many ways



Wikimedia Commons, Author: Jane Ross

University of Canterbury Longer Term Response

- Education as key to rebuilding Christchurch¹
- Graduating students as human capital
 - Resilient and broadly skilled
 - Living and rebuilding through a disaster
- Six graduate attributes identified (shortened here)²:
 1. Knowledge and skills of a recognized subject
 2. Critical thinking skills and intellectual independence
 3. The ability to interpret information from a range of sources
 4. The ability to self-direct learning
 5. Cultural competence
 6. Recognition and understanding of global citizenship through social, ethical, and environmental values

Graduate Attributes in Fieldwork

- Knowledge and skills of a recognized subject
 - Petcovic et al., 2009; Kastens et al., 2009; Petcovic et al., 2014
- Critical thinking skills and intellectual independence
 - Kastens et al., 2009; Riggs et al., 2009; Feig, 2010; Petcovic et al., 2014
- The ability to interpret information from a range of sources
 - Kastens et al., 2009; Feig, 2010
- The ability to self-direct learning
 - Petcovic et al., 2009; Riggs et al., 2009



A. Jolley

Graduate Attributes in Fieldwork



A. Jolley

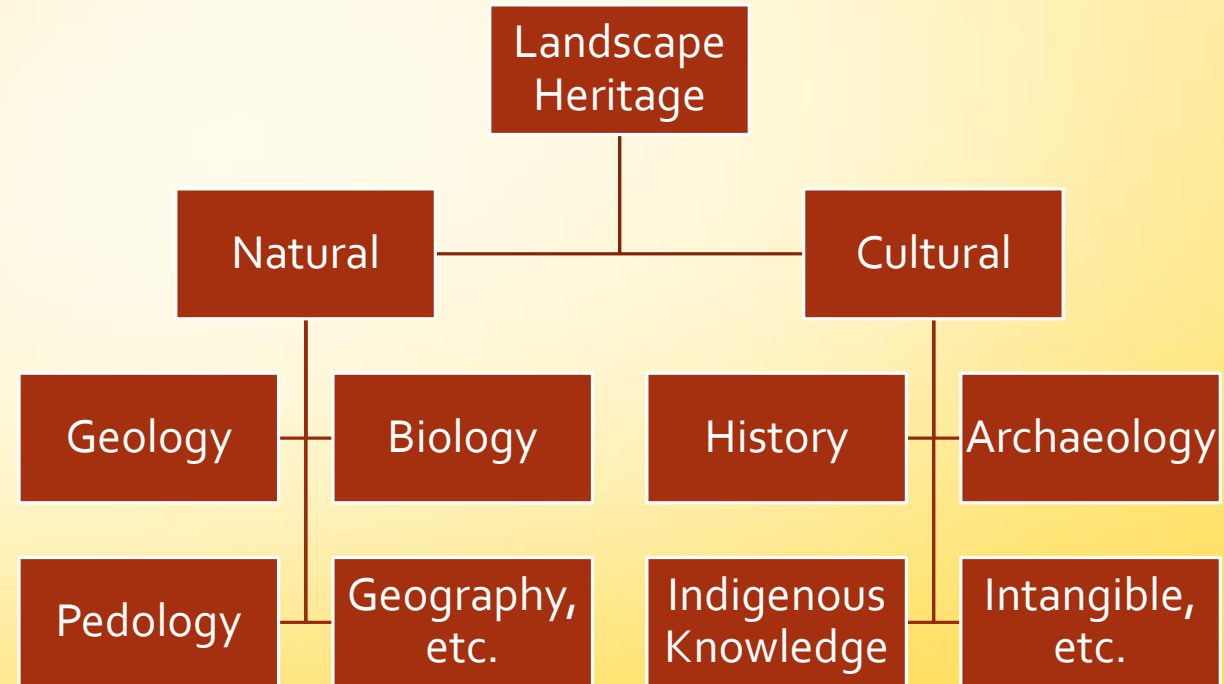
- Cultural competence
 - Semken and Butler Freeman, 2008; Semken and Brandt, 2010 ; Williams and Semken, 2011
- Recognition and understanding of global citizenship through social, ethical, and environmental values
 - Smaglik, 2008; Wandersee and Clary, 2008; Semken and Brandt, 2010; van der Hoeven Kraft et al., 2011

Framework Concepts for Field Education

- Need a way to conceptualize these complex topics in order to understand how they are being developed in the field
- And hence, how they are applicable and marketable as workforce (and life!) skills
- First, think about the landscape as more than just a context for field education
- Next, think about how students (and people) think and learn about that landscape

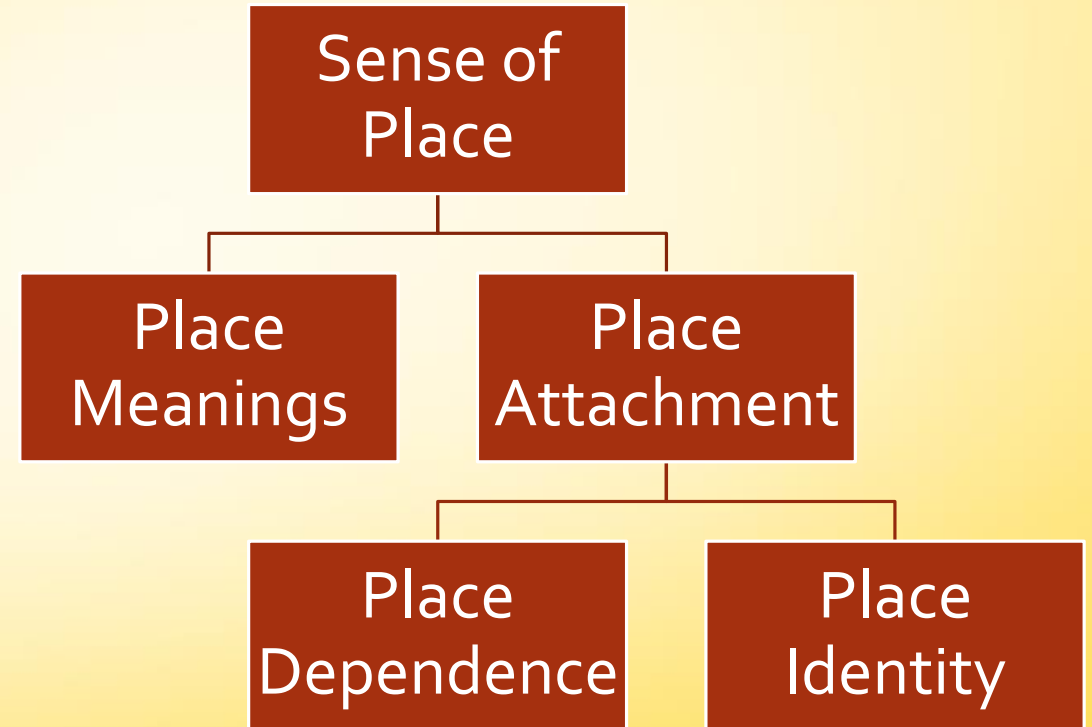
Landscape Heritage

- Integrates natural and cultural features in a spatio-temporally inclusive manner¹
- Avoids overspecialization of field education², by taking a holistic view of the landscape
- Builds upon the earth systems approach³ by expanding temporal scope
- Maintain 'reciprocal equity'⁴ between people and landscapes



Sense of Place

- People construct reality by sensing and perceiving landscapes¹
- Create meanings, rooted in the 'lived consciousness'² of that place
- Many components of sense of place



Williams and Stewart, 1998; Williams and Vaske, 2003; Semken and Butler Freeman, 2008

Conclusions

- Unique situation forced the University of Canterbury to consider an increased range for the development of a graduate skillset
- Focus on broader ways that field education may develop career geoscientists of all kinds
- In particular, cultural and global socio-environmental skills may be conceptualized by thinking about the field landscape more holistically
- And, identifying aspects of the field experience related to place

Thank you!

alison.jolley@pg.canterbury.ac.nz

